Seeing the Desert at 70 Feet

by Lt. Jeffrey Sowinski

FA-18C photo by Matthew J. Thomas
Photo-composite by Patricia Eaton

It was another beautiful day in May in Fallon, Nev., and I was looking forward to my flight in an FA-18C. The East Coast Hornet FRS was in town for a strike detachment, and my mission was a Low Altitude Training (LAT) chase on a Cat. I replacement pilot. This flight is the first one where a Cat. I alone is in a jet at 200 feet. The IP runs the RP through LAT maneuvers and acts as a safety-of-flight observer.

About a third of the way through the LAT hop, I prompted the RP to do a 30-degree turning oblique jink (TOJ), with a three-second delay at the vertical. The maneuver starts at 420 knots; you bring the nose up 30 degrees while turning, delay for three seconds, point the nose back at the ground, and then use LAT recovery rules to establish yourself at 200 feet again.

We were working the Dixie Valley LAT area, which is flat with mountain ranges on either side boxing the airspace. Being the above-average IP that I am, I was trying to keep the RP's nose tracking down the valley during these maneuvers by setting him up offset into the direction of the valley floor. I've learned that no matter how you set up an RP, you always can count on a new student pointing their nose at any rising terrain. This happens because students concentrate so hard on the maneuver and not the airspace. The bucket gets full, and that's exactly what happened in this particular case.

As the RP was intercepting his LAT recovery rules, I was spending more time than usual looking at his aircraft because of the rising terrain in front of him. I was trying to time it so that as he leveled off from the TOJ, I would give him a quick heading-change south before the mountain range became a factor. At that very moment, Betty (the Hornet voice-alert system) yelled, "Pull up! Pull up!" and I saw the big recovery arrow in the HUD. I must have been entirely too fixated on the RP, because I hadn't noticed that my radalt had stopped working. My altimeter in the HUD was going back and forth between barometric and radalt altitude. My radalt warning, set at 180 feet, wasn't working, either. I shouted a hearty expletive as I realized we were at about 100 feet, in a 1.5-degree, nose-down attitude and in slightly rising terrain.

I yanked the stick in the direction of the arrow (my lowest altitude was about 70 feet). The wonderful desert flora started looking huge. I hate to think what would have happened if the Hornet's Ground Proximity Warning System (GPWS) hadn't given me that hey-knucklehead-you're-about-to-hit-the-ground message.

As I understood GPWS, the system enters a coast mode if your radalt stops working. Upon further review of the 13C grey book, I confirmed that this was the case. While in the coast mode, GPWS calculates a best estimate of the aircraft's current height above the ground, using barometrically damped inertial altitude and the terrain elevation measured when the radalt failed. Coast mode is available for a maximum of two minutes, and only if the estimated terrain slope is less than or equal to two degrees. Trailing the RP by a half-mile, I was fortunate I wasn't flying over terrain with a slope of more than two degrees.

Mission-crosscheck times are there for a reason. No matter what the situation, obey them. Also, if a student puts you in a position you do not like, call "Knock it off," and set up the maneuver again. These flights are intense, and as the IP, watching your student's altitude and nose position while flying your own aircraft can get you in an extremely hazardous situation very quickly. I always thought GPWS was a nuisance, especially in the landing configuration, but now, after flirting with the ground at 420 knots without a working radalt, I am a true believer in the system.

Lt. Sowinski flies with VFA-106.